

CPUC ZEV Rate Design Forum

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Distributed Energy Strategy

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Powering forward. Together.



Sacramento Municipal Utility District Overview

Sacramento County in Northern California

- 900 Square Miles
- 2nd largest muni in California, 6th largest in the US

Not-for-Profit Municipal Electric Utility

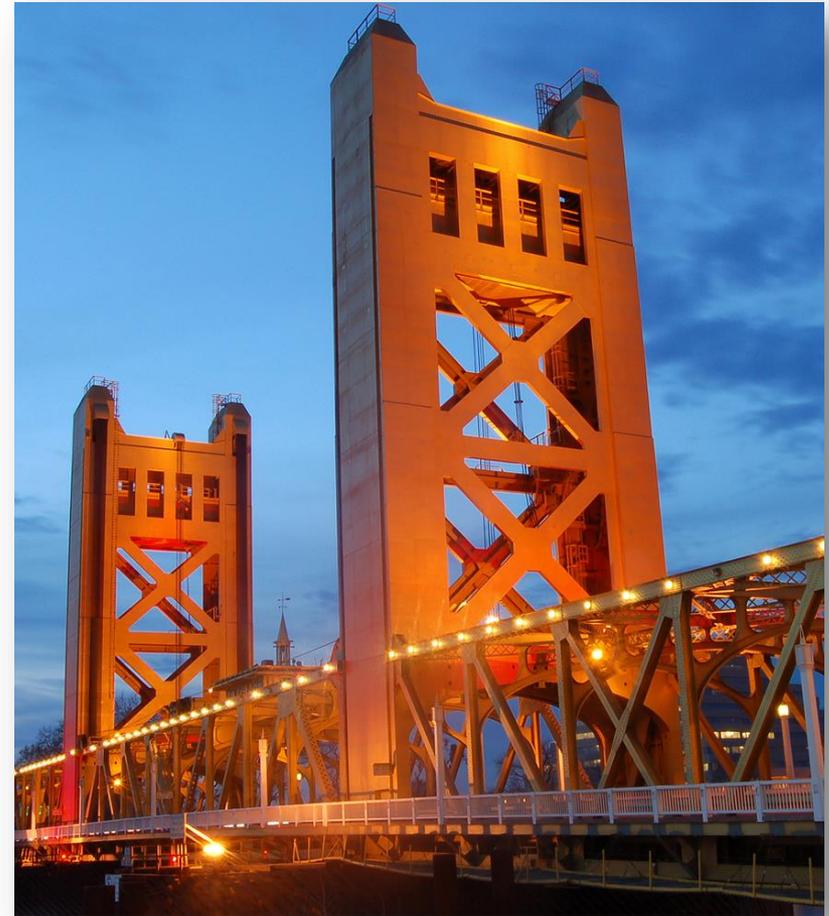
- Governed by a Board of Seven Directors
- 2000 Employees
- \$1.46B Budget

625,000 Accounts (1.46M Population)

- 550,000 Residential Accounts
- 75,000 Commercial Accounts

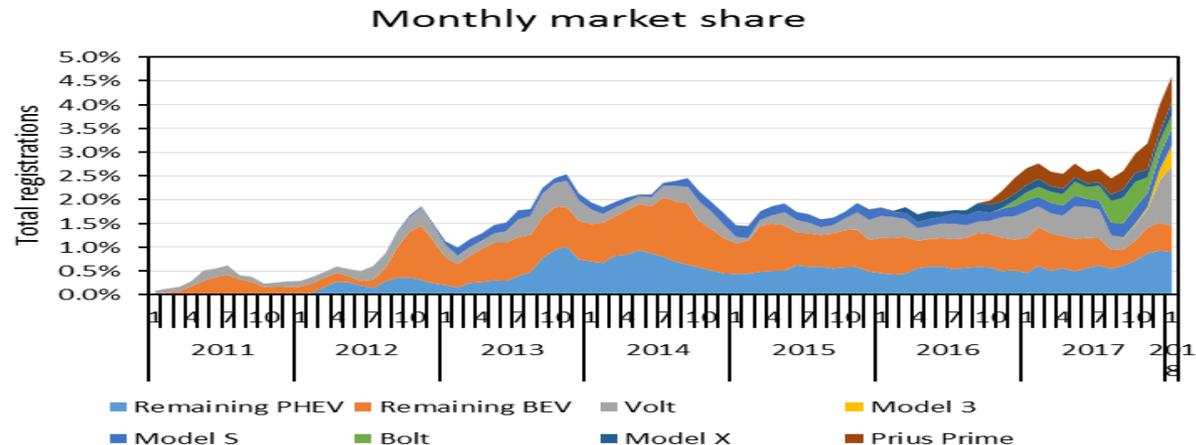
Load Serving Capability

- SMUD-owned generation provides over 1800 MW of generating capacity
 - Hydro - 11 reservoirs and 9 power plants
 - Thermal - 5 plants and the gas pipeline
 - Renewable - wind and utility-grade solar
- Generate enough power to serve ~65% of annual load
- Summer-peaking load is ~3300 MW (air conditioning)



State of the Market in SMUD Territory

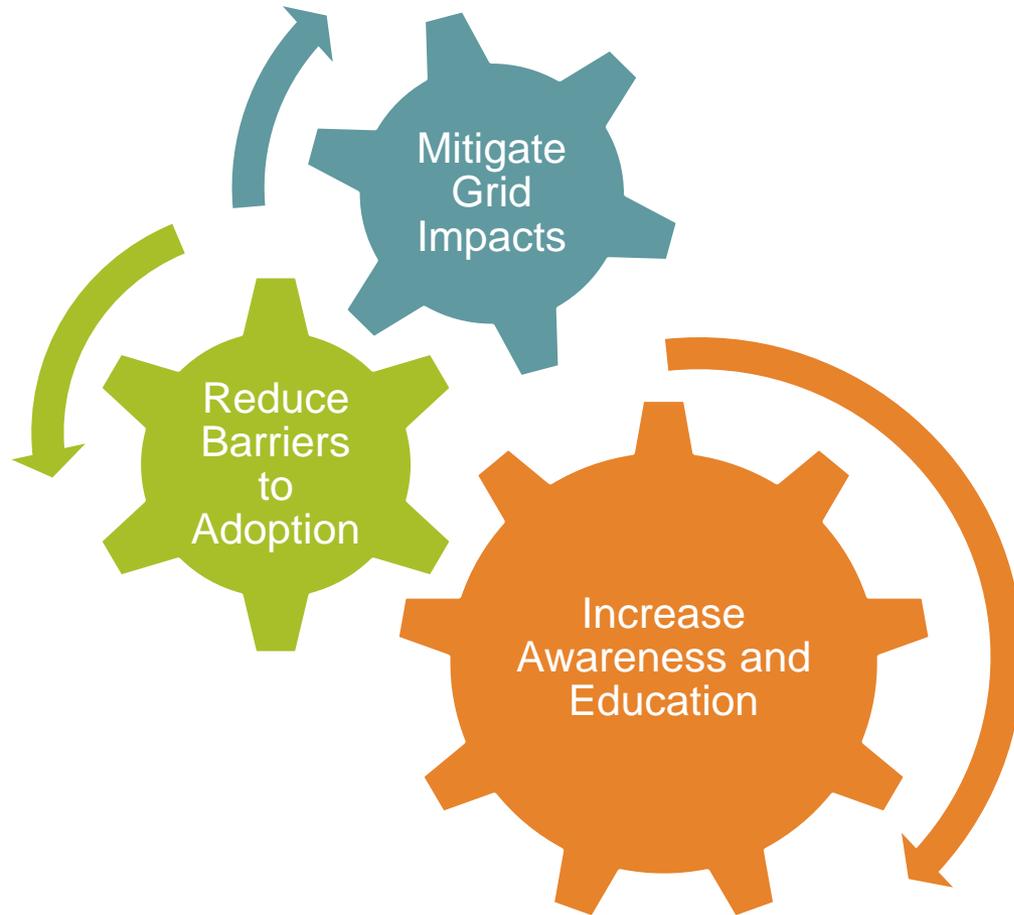
- 7th most EVs as a share of new vehicle purchases¹ (Top 50 Metro Areas)
 - Still only at ~7,500 vehicles and 2-3% of new sales
 - Sales rate has increased by 45% since 2016 (130/month vs. 90)
 - Gas Prices up ~35% since January 2017
- City of Sacramento EV Strategy² forecasts up to 74,000 ZEV's in Sacramento by 2025.



¹ <http://www.theicct.org/leading-us-city-electric-vehicle-2017>

² http://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Electric-Vehicles/EVStrategy_171212_FINAL_CityOfSacramento.pdf?la=en

Overarching EV Strategy



Education and Awareness

- In 2017 SMUD facilitated 5 ride and drives.
 - Approximately 1,500 unique participants and 3,000 ride & drive experiences.
 - 6 Events planned in 2018
- Active marketing of OEM EV rebates
 - Digital marketing
 - In bill flyers
- On-line Tools and Classes
 - EV Estimator
 - Class: Is an Electric Vehicle Right for You?

EV Programs (Reduce Barriers)

- New Vehicle Purchase Incentive
 - \$599 to cover the cost of charging for 2 years or a free level 2 EVSE (75%+ Participation Rate)
- DC Fast Charger Incentive
 - \$100k incentive per qualified project
- Workplace and Multi-family Charging Incentive
 - \$1,500 per charge port

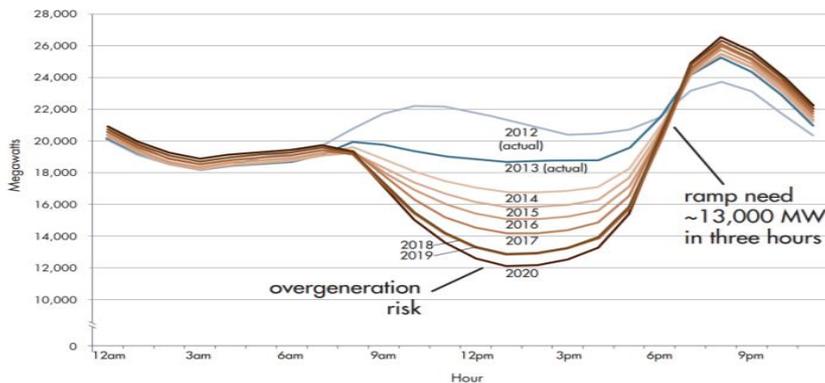
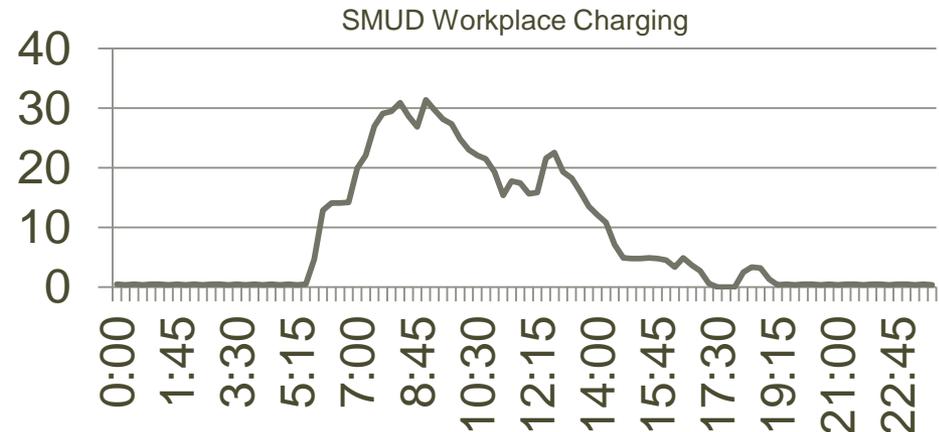
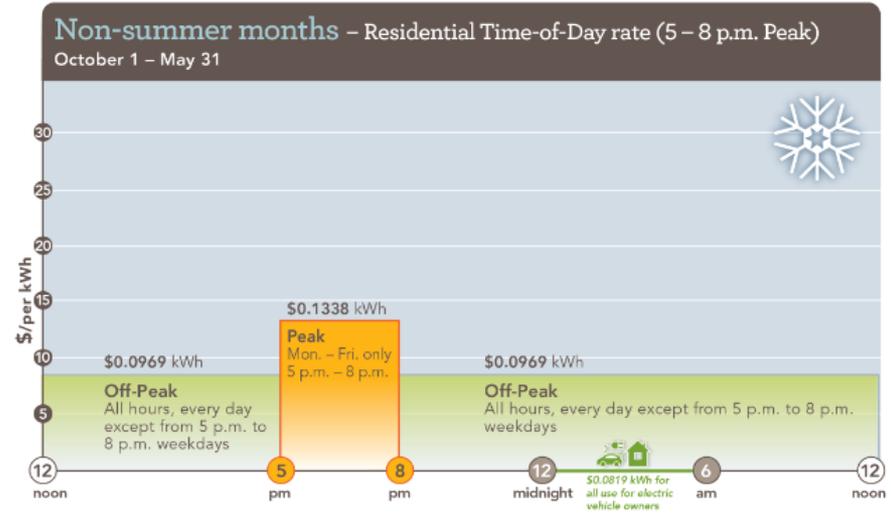
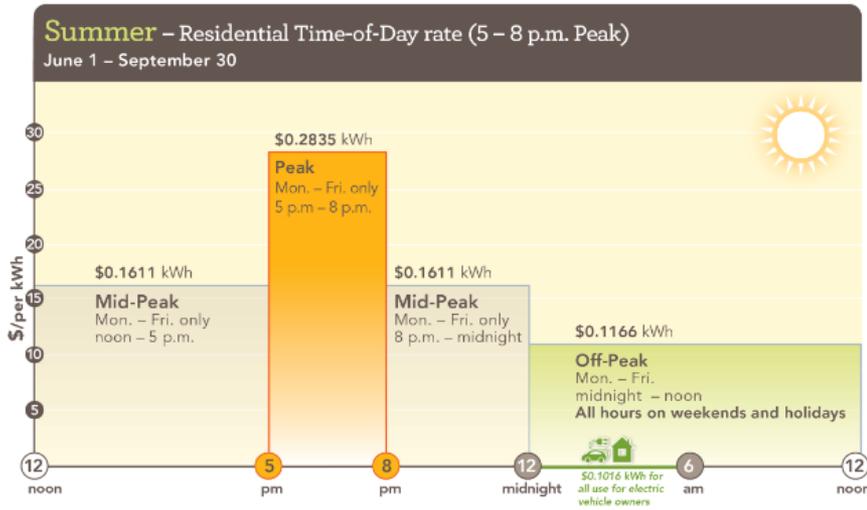


Figure 1. The CAISO duck chart



Residential Electric Rate Designs



- All customers transferring to Time-of-Day rate during 2019
 - Current standard rate is volumetric
 - TOD provides seasonal and time based price signaling
- EV Owners receive an additional discount to off-peak rates of \$0.015/kWh from 12 midnight to 6AM.
 - Discount is based on infrastructure and energy savings obtained by charging overnight

Commercial Electric Rate Design

- Existing rates are a combination of fixed costs, TOU energy charges and demand charges.
 - Multiple rate tiers exist and are assigned based on customer peak demand
- Demand charges are generally low.
 - Average Monthly Range ~\$3.98/kW to \$7.5/kW
- Commercial EV chargers are enrolled onto our standard rates.

Overview of Rates and Programs

Residential	Business
Free L2 Charger or 2 Years Free Charging (\$599 Charging Incentive)	DC Fast Charger Incentive (Up to \$100k per qualified project)
Residential TOU Credit (\$0.015/kWh discount from Midnight to 6AM)	Multi-Family Charging Incentive (\$1,500 per charger port)
Marketing for Manufacturer Rebates (up to \$10,000)	Workplace Charging Incentive (\$1,500 per charger port)

<https://www.smud.org/en/Going-Green/Electric-Vehicles/Residential>

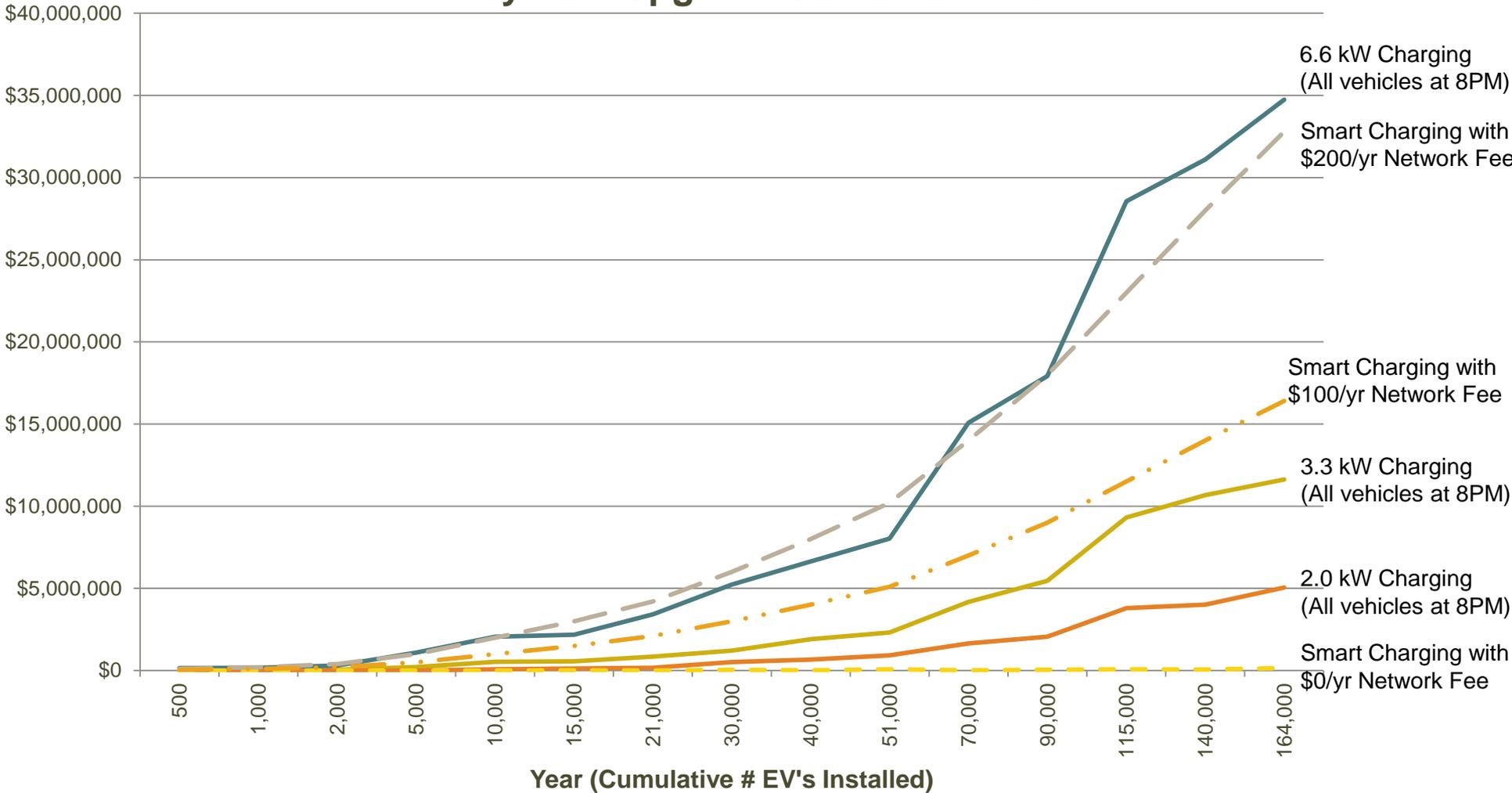
<https://www.smud.org/en/Going-Green/Electric-Vehicles/Business>

Future Considerations

- Price Communication and CPP Pilots
- Managed Charging Pilots
- High Speed DCFC (150kW to 300kW) Grid Impact Studies
- EV Charging Integration with Energy Storage
- Locational Cost and Infrastructure Utilization Opportunities
- EV's and EVSE's Providing Grid Services

Cost of Communication Is a Barrier

Annual System Upgrade Costs Vs. EV's Installed



Thank you!